

**Madison Fisheries Technical Advisory Committee**  
**NorthWestern Energy – FERC Project 2188**  
**Annual Meeting for 2023 Calendar Year**  
FWP Headquarters, Bozeman

December 1, 2022  
9:00 to 4:00

**0900 Welcome**

- Jon Hanson, NorthWestern Energy, facilitated the meeting. A list of attendees is provided at the end of the meeting summary. A quorum was present including NWE, FWP, USFS, FWS, and BLM

**MadTAC Business**

Madison Flow Restoration Plan Article 420

Plan is to get this draft to agencies by mid January for review. Proposed to base the flow restoration on a response time as opposed to the water based response time as depending on flow levels this can vary widely and is out of NWE control.

Water Quality

- Jordan gave a presentation on flushing flow and water quality monitoring that occurred in 2022. The 5-year flushing flow plan is being updated in 2022 and expected to be filed with FERC in spring 2023. It will go out to TAC members in early January for review. A flushing flow was not planned but the spring storm event created and exceeded typical flushing flow conditions. Lower river fines were still over 19% with the flush.
- Sediment cores, redd counts, and macroinvertebrates were collected at sites. See WQ presentation and final report for more details on results.

Hebgen gate failure monitoring results and update

FWP gave an update on the first year of monitoring results. Four field based investigations were completed.

- Pine Butte population estimates: The high abundance of age-1 Brown Trout in 2021 did not translate into a strong age-2 cohort in 2022; however, difficult sampling conditions (high water temperatures and crew inexperience) in the fall of 2021 led to unreliable abundance estimates and inferences should be cautious. It is presently unclear whether the apparent decrease in abundance of that cohort is attributable to the 2021 Hebgen gate failure, given the uncertainty in the 2021 estimate and the observed relative decline in age 2 Brown Trout in previous years.

Age 2 Brown Trout have been below the 20-year average since 2018, indicating other factors may also affect brown trout abundance in the upper Madison River. Continued monitoring in 2023 will provide more insight into the effects of the gate failure on YOY Brown Trout as fish from the 2022 cohort that were eggs in the gravels of spawning redds during the dam failure will have recruited to electrofishing surveys. The estimated above average abundance of age 1 Rainbow Trout suggests the gate failure did not have a major negative effect on that cohort.

- Juvenile salmonid Presence-Absence Survey- Presence-absence surveys confirmed that YOY and juvenile salmonids occupied reaches of the river most affected by the Hebgen Dam gate failure. Brown Trout YOY were present in 90% of the side channels sampled in June and 95% in July. Young-of-year Rainbow Trout were present in 90% of the side channels sampled in July. Rainbow Trout YOY absence from the June sample is attributable to relatively late emergence compared to brown trout (Downing 2001), which resulted in clear size differences between YOY Brown and Rainbow Trout. No Mountain Whitefish YOY were observed, age-1 Mountain Whitefish were present in 5% and 20% of side channels, and age-2 Mountain Whitefish were present in 5% of side channels in the respective sampling periods. Larval drift of Mountain Whitefish may have distributed juveniles to areas of slower velocities than sampled for this report (Boyer 2016).
- CPUE survey between Hebgen Dam and Quake Lake inlet- Sampling between Hebgen Dam and Quake Lake showed lower  $C/f$  for all fish species and age classes than anticipated, which may be a result of the swift and deep river conditions throughout the section. Rainbow Trout and Mountain Whitefish comprised the majority of the fish sampled, and Brown Trout were at relatively low abundances. Data collected in 2022 will be compared to subsequent surveys to assess the potential effects of the Hebgen gate failure. In general, sampling conditions, normal fluctuations in abundances, and the lack of baseline data could confound our ability to attribute future changes in the trout populations to the gate failure.
- Fall Redd Counts- Most Brown Trout redds between Hebgen Dam and Quake Lake occurred in side channels, which were the habitat most impacted by gate failure. Of the 165 redds identified, 151 were located in side channels and 14 were located within the main river channel. Future investigations into the relationship between stage and discharge in this section of the river would provide insight into the flows required to maintain adequate spawning conditions.

### **Review of 2022 Projects and Accomplishments**

<b>ID</b>	<b>Project Title</b>	<b>Agency</b>	<b>Approved Cost</b>
2022-1	2188 Operations and Personnel	FWP	\$186,250
2022-2	Ennis Office Rent	FWP/NWE	\$7,200
2022-6	Pine Butte and Deadman WCT Barriers	FWP/NWE	\$37,812
2022-5	Emergency/Contingency Fund	NWE	\$10,000
2022-3	CGNF Seasonal Technician	USFS	\$6,403

2021-10	SFK Madison River Floodplain and Habitat Improvement	USFS	\$60,600
2022-4	BDNF Seasonal Technician	USFS	\$10,070
2022-7	Moore Creek Restoration Plan	RDG	\$7,500
2021-13	Ruby FAS Swale Restoration	MRF	\$12,000
2020-11	Madison River Riparian Restoration	MRF	\$20,000
2020-08	MSU Invertebrate Study	MSU	\$40,000
2021-11	Indian Creek Irrigation Improvement and Streamflow Enhancement	TU	\$33,316
2020-09	Restoration Planning	TU	\$30,634

All 2022 approved projects are on time and were completed during the year. Both the Ruby Swale and Madison River Riparian Restoration projects are on hold as the group agreed to use Ruby dollars to enlarge the scale of that project and the riparian project needs to have additional discussions to see what this has become. The MSU invertebrate study is wrapping up and the graduate student is finalizing his thesis, with an anticipated completion date of early 2023. Indian Creek irrigation project is ongoing and the first year of data collection has been completed, the TU restoration planning work is also ongoing.

**End of year 2022 Budget**

Estimated 2023 Starting Available Reserve Balance \$106,027

2023 Annual Contribution \$445,939

## **2023 MadTAC Proposals**

Projects were approved by all voting TAC members except the Fox Creek Water Trough and the WFK Madison Barrier is approved, but contingent on genetic results.

2023-6 West Fork Madison Barrier- This project was approved but is contingent on the WCT genetic results that were collected in 2022. FWP and USFS will evaluate the results and based on professional judgement and the WCT Management Plan determine if the barrier should be constructed or forgone. Additional work to remove hybrids may be needed depending on results.

2023-10 Fox Creek Water Trough- There were questions about the effectiveness of just installing water troughs and if this would be enough to move cattle out of the creek. Additional details were needing to be collected on site with the FS fish biologist and the range technician about where to put troughs. It was agreed to put this project on hold and not approve it at this time. Once additional details are collected and if it looks effective based on this information a mailing would be sent out to approve the project in 2023.

<b>ID</b>	<b>Project Title</b>	<b>Agency</b>	<b>Requested Funds</b>	<b>Approved Funds</b>
2023-1	2188 Operations and Personnel	FWP	\$196,385	\$196,385
2023-2	Ennis Office Rent	FWP	\$7,200	\$7,200
2023-3	CGNF Seasonal Technician	USFS	\$6,403	\$6,403
2023-4	BDNF Seasonal Technician	USFS	\$6,516	\$6,516
2023-5	Emergency/Contingency Fund	NWE	\$10,000	\$10,000
2023-6	West Fork Madison Barrier	USFS/FWP	\$10,184	\$10,184
2023-7	Ruby Side Channel	MRF	\$119,965	\$119,965
2023-8	Norris Reach Master Plan	RDG/FWP/NWE	\$73,920	\$73,920
2023-9	O'Dell Creek Phase 19 Design	RDG	\$10,000	\$10,000
2023-10	Fox Creek Water Trough	USFS	\$10,000	
	<b>Total Request For 2023</b>		<b>\$450,573</b>	<b>\$440,573</b>
	<b>Contribution for CY2023</b>		<b>\$445,939</b>	
	<b>Balance</b>		<b>\$4,634</b>	<b>\$5,366</b>

<b>Name</b>	<b>Affiliation</b>
Andy Welch	NWE
Grant Grisak	NWE
Jordan Tollefson	NWE
Mary Gail Sullivan	NWE
Jon Hanson	NWE
Jim Boyd	FWS
Matt Jaeger	MFWP
Jenna Dukovcic	MFWP
Travis Lohrenz	MFWP
Mike Duncan	MFWP
Alden Shallcross	BLM
Monica Berreman	BDNF
Matt McCormick	MFWP
Jake Chaffin	CGNF
Pat Byorth	TU
Jon Malovich	MRF
John Muhlfeld	RDG
Ashley Brubaker	TU